STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

March 31, 2014

Ms. Shari Kolak,
Regional Project Manager
United States Environmental Protection Agency
Region 5 (SR-6J)
Chicago, Illinois 60604

SUBJECT: Draft Final Explanation of Significant Difference (ESD) for the KL Avenue Landfill Superfund Site

Dear Ms. Kolak:

The Michigan Department of Environmental Quality (MDEQ) staff has reviewed the KL Avenue Landfill DRAFT FINAL ESD you submitted on February 8, 2014. Following are MDEQ staff comments and recommendations:

The 2005 Record of Decision (ROD), as amended, states that the "objective of the groundwater use restriction is to ensure that no one can potentially be exposed to contaminated groundwater until groundwater meets the performance standards." Also the 2005 ROD, as amended, states that "the restricted zone will prevent the use of contaminated water for drinking and other ingestion purposes." It does not account for the vertical groundwater use within an aquifer in the restricted zone.

The proposed ESD consists of establishing a restricted zone area allowing for exceptions to prohibition under Chapter 25b of the Kalamazoo County Sanitary Code (the Code), and establishing a vertical restriction on groundwater use to allow for the continued use of residential wells in the Chaddsford Way (CFW) Subdivision. This proposal conflicts with the Code. The Code does not account for the vertical groundwater use restrictions within an aquifer in the restricted zone. The MDEQ recommends that an amendment to the Code, that adds the new KL Avenue Landfill Groundwater Restricted Use Zone (GRUZ) to the Code, clearly state how deviations from Chapter 25b of the Code will be handled, and identify the area where vertical aquifer use restrictions will apply and what those restrictions will be. Further, the GRUZ must specify a frequency of sampling all wells to be left in place for the long term, and what will be done as a contingency if the wells are found to be contaminated.

The MDEQ is supportive of the idea of drawing water from a useable aquifer. In fact one of the stated objectives of the amended ROD is to return aquifers to a useable condition. The shallow zone of the aquifer appears to be clean and may remain so in the foreseeable future. Therefore, we agree it should be able to be used for drinking water purposes provided that:

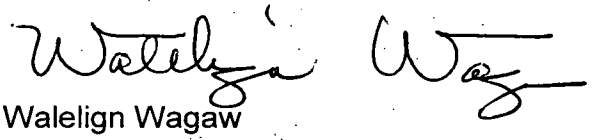
- it is assured through frequent monitoring that there is no vertical migration of contaminants through geologic barriers;

- there is a long-term monitoring plan for all wells left in place;
- there is a contingency plan for providing municipal water if water from these wells is determined to be unsafe and unsuitable for use;
- the owner of the property extracts groundwater only from an uncontaminated aquifer;
- such extraction well, groundwater extraction, and related activities do not threaten or adversely impact the movement of contaminants from a contaminated aquifer;
- any groundwater extraction and potable use of any groundwater well into or from the contaminated aquifer is prohibited in accordance with the ROD, as amended;
- and the Kalamazoo County Sanitary Code is amended as discussed above.

The proposed change directly and significantly affects how residents in the CFW Subdivision get their drinking water. These residents should be allowed an opportunity to provide comments before a final decision is made. The MDEQ recommends that an informational/Public Meeting be conducted to explain the proposed change to the residents in the subdivision and others to solicit their input. The residents of CFW Subdivision should be made fully aware of the proposed ESD and be given a chance to make an informed decision.

Please do not hesitate to contact me if you have any questions related to this letter.

Sincerely,



Walelign Wagaw
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cc: Mr. Ajit Vaidya, U.S. Environmental Protection Agency
Mr. David Kline, MDEQ
Mr. Robert Franks, MDEQ
Ms. Carol Tracy, MDEQ
Mr. Brad Ermisch, MDEQ
Mr. Dan Yordanich, MDEQ
KL Landfill Superfund File

Attachment

Explanation of Significant Differences
West KL Avenue Landfill Superfund Site

I. Introduction

A. Site Name and Location

The West KL Avenue Landfill Superfund Site (Site) is located in Oshtemo Township, Kalamazoo County, Michigan, approximately three miles west of the incorporated boundary of the City of Kalamazoo. The Site is approximately 87 acres and is bordered to the south by West KL Avenue. The area surrounding the Site includes a mixture of farms, residences and businesses.

B. Lead and Support Agencies

The U.S. Environmental Protection Agency (EPA) is the lead agency for oversight of the Potentially Responsible Parties' (PRPs) operation and maintenance of the closed landfill. Michigan Department of Environmental Quality (MDEQ) is the support agency.

C. Statement of Purpose and Statutory Basis

This decision document sets forth the basis for issuing an Explanation of Significant Differences (ESD) to the September 28, 1990 Record of Decision (ROD) for the West KL Avenue Landfill Site. The purpose of this ESD is to clarify the groundwater Institutional Control (IC) requirement of the ROD that prohibits potable groundwater use at properties designated as within the municipal water service zone (MWSZ), as defined in the 2003 and 2005 ROD Amendments. This ESD also documents a decision to allow potable groundwater use at properties within the MWSZ provided data and other records demonstrate that the criteria listed under Section IV of this ESD continue to be met.

EPA is issuing this ESD in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9617(c), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the National Contingency Plan (NCP), 40 C.F.R § 300.435(c)(2)(i). The Director of the Superfund Division has been delegated the authority to sign this ESD.

D. Administrative Record

This ESD will become part of the administrative record file for the West KL Avenue Landfill Site, in accordance with Sections 300.825(a)(2) of the NCP. The administrative record file for the Site is available for public review at the following locations:

EPA Region 5 Records Center
77 W. Jackson Boulevard, 7th Floor
Chicago, IL 60604
(312) 353-5821

Hours: Monday-Friday: 8am-4pm

Oshtemo Township Public Library
7265 W. Main
Kalamazoo, Michigan 49009
(269) 553-7980

Hours: Monday: 10am-8pm
Tuesday: 12pm-8pm
Wednesday and Thursday: 10am-6pm
Friday and Saturday: 10am- 5pm

II. Site History, Contamination, and Selected Remedy

A. Site History and Contamination

The Site operated as a small, twenty acre private dump from about 1955 until 1960 when Oshtemo Township leased the property for use as a sanitary landfill. Throughout the 1960s, the Township operated the landfill as a municipal dump. In 1968, Kalamazoo County entered into an agreement with Oshtemo Township to use the site as a county-wide landfill. The County acquired additional acreage adjacent to the dump to create the present 87-acre landfill. From approximately 1968 to 1974, the landfill accepted industrial, commercial and municipal waste. An estimated 5 million cubic yards of refuse, including some bulk liquids and drummed chemical wastes were disposed of in the landfill. The landfill was in operation until 1979 when it was closed by the Michigan Department of Environmental Quality (MDEQ) due to the detection of volatile organic compounds (VOCs) in residential drinking water supply wells downgraident of the Site.

The MDEQ also ordered the County to provide an alternate water supply to affected residents and to install an impermeable cover over the landfill. Eleven new residential wells were installed in a deep uncontaminated aquifer to service those residents whose wells were affected by the contamination. Kalamazoo County also installed a new water main along West KL Avenue and South 4th Street near the landfill to service the residents that requested connections to municipal water. In 1980, the landfill was capped with a two foot thick layer of soil and clay. The landfill is closed and has not received any waste since May 1979.

The Site was added to the National Priorities List (NPL) in December 1982. From 1986-1988, EPA conducted a fund-lead remedial investigation/feasibility study (RI/FS) to investigate the nature and extent of contamination at the landfill and in the groundwater. The RI was completed in 1989 and the FS in 1990. The RI/FS found that the groundwater contained VOCs and semi-volatile organic compounds (SVOCs). Major contaminants included vinyl chloride, chloroethane, benzene, acetone and 1, 2-dichloroethane. The RI/FS also found that a groundwater plume (area of contaminated groundwater) emanated from the landfill and extended to the west and northwest approximately 1/3 mile downgradient of the Site.

B. Selected Remedy

On September 28, 1990, EPA issued a ROD for the entire Site that addressed contaminated groundwater and landfilled source materials. The final remedy selected in the ROD includes the following components:

Groundwater

- Limited action including continued groundwater monitoring, ICs to restrict potable groundwater use by placing deed restrictions on designated properties impacted or potentially impacted by the groundwater contamination and the proper abandonment of closed residential wells; and
- Groundwater extraction followed by treatment (pump and treat) via enhanced bioremediation utilizing fixed film bioreactors. The treated groundwater, treated to meet the more stringent of the state or federal applicable or relevant and appropriate requirements (ARARs), would then be injected back into the shallow aquifer, piped to the City of Kalamazoo publicly owned treatment works, or discharged into an on-site infiltration pond.

Landfill

- Limited action including limiting site access by installing a fence around the perimeter of the Site and placing deed restrictions on the landfill property; and
- Landfill containment by utilization of a multi-layer RCRA type cap consisting of (from bottom to top) a 2-foot clay layer, a 60-mil density polyethylene liner, a 12-inch drainage layer, a geotextile filter fabric, a 2-foot layer of clean fill, all topped by a 6-inch layer of topsoil. Gas venting and monitoring would also be incorporated into the landfill design.

On February 27, 2003, EPA issued the First Amendment to the ROD. The 2003 ROD Amendment:

- Required a new municipal water supply zone (MWSZ) designation or alternative institutional controls on properties where groundwater contamination had been found and on properties within a buffer zone extending beyond the contaminated groundwater plume. The 2003 ROD Amendment prohibited these properties from potable groundwater use, restricted other groundwater uses, and provided for alternative water supplies including connecting all properties within the MWSZ to the City of Kalamazoo's municipal water system; and

- Revised the groundwater cleanup standards in the 1990 ROD, replacing the Michigan Environmental Response Act, 1982 PA 307, as amended, Type B standards, with the then current residential standards established under Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 201).

On September 12, 2005, EPA issued a Second Amendment to the ROD. The 2005 ROD Amendment:

- Expanded the boundary of the MWSZ established by the 2003 ROD Amendment, moving the boundary further downgradient to the west to include additional properties that have had site-related contaminants detected in their drinking water wells. In particular, the 2005 ROD Amendment imposed the MWSZ designation on each property within a minimum one-thousand foot distance (buffer zone) downgradient from any groundwater sample with site-related contaminants above groundwater cleanup standards;

- Replaced the 1990 ROD active pump and treat remedy for the contaminated groundwater plume with Monitored Natural Attenuation (MNA) and Contingent Remedies, should MNA prove to be ineffective in remediating the groundwater plume in a reasonable time; and

- Replaced the 1990 ROD landfill cap design requirement of a two-foot thick clay layer with a geosynthetic clay layer and a 12-inch drainage layer with a geocomposite drainage layer. The amended cap design also reduced the two-foot thick layer of clean fill to eighteen inches. All other components of the landfill remedy remained unchanged.

In lieu of implementing ICs via deed restrictions on each property within the MWSZ, the 2005 ROD Amendment allowed for the use of a groundwater ordinance to prevent the use of contaminated groundwater until groundwater meets cleanup standards in the ROD. The 2005 ROD Amendment required that an application be made to Kalamazoo County for the establishment of a Groundwater Restricted Use Zone (GRUZ) ordinance. Upon approval by the County, the groundwater ordinance would require all private well users within the GRUZ

Comment [WW(1]: delete

Comment [WW(2]: specified in the ROD

Comment [WW(3]: replace with 'submitted"

to connect to municipal water and abandon their private drinking water supply well, subject to limited exceptions set forth in the Kalamazoo County Sanitary Code (i.e., irrigation wells, groundwater monitoring wells, etc.) and only if its use was approved by Kalamazoo County and MDEQ.

III. Basis for the ESD

Nineteen residential properties within the Chaddsford Way (CFW) subdivision obtain their drinking water from existing private water supply wells that are screened in an aquifer overlying the contaminated aquifer, and data and records indicate that this overlying aquifer is not impacted by site-related contaminants. All CFW wells have been tested for site-related contaminants since the spring 2009 by the KLA Group and/or the Kalamazoo County Health and Community Services Department under contract with the MDEQ. No site-related groundwater impacts, specifically 1,4-diethylene dioxide (1,4-DD) or tetrahydrofuran (THF), have been detected in any CFW water supply wells since monitoring began.

Comment [WW(4]: Is this statement accurate? The Table provided shows that the CFW wells were sampled only in 2009 and 2012.

Since data indicates that the CFW water supply wells are not impacted by site-related contaminants, CFW residents would like to retain and continue using their existing water supply wells for drinking water. However, because the CFW subdivision is located within the one thousand foot buffer of the MWSZ (due to contamination in the lower aquifer), properties within the CFW subdivision are subject to the IC groundwater extraction and potable use restrictions of the ROD, as amended, and the remedy, as currently written, requires that these properties connect to municipal water and that these private wells be abandoned.

Comment [WW(5]: Has there been any informational/public meeting to explain the proposed change to CFW residents? The CFW residents and others should be allowed an opportunity to provide comments before a final decision is made.

To address the situation at CFW, the KLA Group (group representing the PRPs) performed a hydrogeological assessment of conditions in the vicinity of and underneath the CFW subdivision. The KLA Group's "Technical Memorandum – Hydrogeological Assessment of Chaddsford Way" can be found in the Administrative Record file at the locations identified under Section I.D. of this ESD. The KLA Group's hydrogeological assessment showed that 1) CFW wells are screened in an aquifer that is not impacted by site-related contaminants and 2) a thick clay aquitard (barrier) is present directly underneath the CFW subdivision and separates the CFW wells from the deeper contaminated aquifer. The KLA Group has concluded it is very unlikely that the CFW residential wells would become impacted by the deep contaminated aquifer since the thickness and impermeability of the clay layer would minimize the upward migration of contaminants.

Comment [WW(6]: Has there been a demonstration through hydrogeologic evaluations (pump tests, groundwater modeling etc..) that there would not be vertical migration of contaminants through geologic barriers?

EPA reviewed the KLA Group's "Technical Memorandum – Hydrogeological Assessment of Chaddsford Way" and accepts the KLA Group's findings that the CFW drinking water wells are screened in an uncontaminated aquifer that is not likely to become impacted by site-related contaminants due to the presence of the thick, 20 to 30 foot clay layer. EPA also accepts the KLA Group recommendation that CFW residents should not be precluded from retaining and using their existing water supply wells for drinking water provided the aquifer continues to remain free of site-related contaminants and other conditions specified in this ESD are met.

The ROD, as amended does not establish different groundwater IC provisions for properties within the MWSZ that overlie an uncontaminated and contaminated aquifer and where residential drinking water wells are screened in an aquifer that is not impacted and not likely to become impacted by site-related contaminants in the future. Therefore, EPA is preparing this ESD to clarify the groundwater IC requirements of the ROD, as amended, to address situations, similar to CFW, and to eliminiate the need for future ESDs or ROD Amendments.

IV. Description of Significant Differences to the Selected Remedy

The significant difference between the groundwater IC requirement of the ROD, as amended and this ESD is that this ESD allows potable groundwater use within the MWSZ provided data and other records demonstrate that the criteria listed below continue to be met:

Comment [WW(7]: delete

Comment [WW(8]: add "for existing wells" after use

Comment [WW(9]: delete

1) the property extracts potable groundwater only from an uncontaminated aquifer;

2) such extraction well, groundwater extraction and related activities do not threaten or adversely impact the movement of contaminants from a contaminated aquifer; and

3) any groundwater extraction and potable use of any groundwater well into or from the contaminated aquifer is prohibited in accordance with the ROD as amended, unless an exception for irrigation and/or non-potable use is granted by MDEQ

This ESD is expected to result in a modest reduction in Site costs by avoiding costs relating to closing wells and connecting properties to municipal water. Since this ESD only applies to extracting and using groundwater which is not impacted by site-related contaminants, there is no impact on the Site remedy in terms of the protecting the public from site-related exposures or achieving site cleanup standards.

The expected outcomes of this ESD are:

- Some properties within the MWSZ, such as CFW, are permitted to use their private wells for drinking water and will not be required to connect to municipal water or abandon their private wells provided the criteria specified in this ESD continue to be met.

- Properties within the MWSZ, meeting the criteria specified in this ESD, will continue to be sampled by the KLA Group to ensure the private wells remain free of site-related contaminants.

- All properties within the designated MWSZ will be included in the KLA Group's application to the County for establishment of a Groundwater Use Restricted Zone however, only the contaminated aquifer underneath the property will be subject to the County's groundwater ordinance.

V. Support Agency Comments

EPA has provided MDEQ with an opportunity to comment on this recommended ESD. MDEQ's comments are included in Attachment A. EPA expects that MDEQ will concur with this ESD.

Comment [WW(10]: delete

VI. Statutory Determinations

EPA has determined that the changes, as documented in this ESD, satisfy the statutory requirements of CERCLA Section 121. This statute requires EPA to select cleanup remedies that protect human health and the environment; comply with applicable or relevant and appropriate requirements; are cost effective; utilize permanent solutions and alternate treatment technologies to the maximum extent practicable; and satisfy the preference for treatment as a principal element of the remedy.

Because EPA's remedy for the West KL Avenue Landfill allows hazardous substances, pollutants, or contaminants to remain in on-site soils and groundwater above levels that allow for Unlimited Use/Unrestricted Exposure, EPA must conduct a statutory review of the Site every five years to ensure the remedy remains protective. EPA, in consultation with MDEQ, will complete the second Five-Year Review of the West KL Avenue Landfill Site by May 11, 2014.

VII. Public Participation Compliance

The NCP 300.435(c)(2)(i) requires the lead agency to publish an ESD when the differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost, prior to the initiation of the remedial action . In accordance with the public participation requirements in the NCP, notice of this ESD will be published in the *Kalamazoo Gazette*.

VIII. List of Attachments

Figure 1: Site Location Map
Attachment A: MDEQ's Comments

IX. Declaration by U.S. EPA

I have determined that the remedy for the West KL Avenue Landfill Site, as modified by this ESD, is protective of human health and the environment, and will remain so provided the actions presented herein are implemented as described above.

This ESD documents the significant changes related to the remedy at the Site. I therefore approve the issuance of this ESD for the West KL Avenue Landfill Site and the change to the remedial action stated herein.

Richard C. Karl, Director
Superfund Division
U.S. EPA Region 5

Date